



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/777,322

02/12/2004

Andrei Pascovici

M61.12-0598

5552

27366

7590

10/20/2006

WESTMAN CHAMPLIN (MICROSOFT CORPORATION)

SUITE 1400

900 SECOND AVENUE SOUTH

MINNEAPOLIS, MN 55402-3319

EXAMINER

SING, SIMON P

ART UNIT

PAPER NUMBER

2614

DATE MAILED: 10/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|--------------------------------------|--|--|
| Office Action Summary | Application No. 10/777,322 | Applicant(s) PASCOVICI, ANDREI | |
| | Examiner Simon Sing | Art Unit 2614 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6,8-18,20-29 and 31-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6,8-12,14-18,20-24,26-29,31-33 and 35-38 is/are rejected.
- 7) ☒ Claim(s) 13,25 and 34 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-6, 8, 9, 14-18, 20, 21, 26-29, 35 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Almeida EP 0942575 in view of Newman et al. US 5,946,654.

1.1 Regarding claim 1, Almeida discloses a system using the Hidden Markov Models (HMM) for speech recognition (paragraph 0053), and a method of identifying a caller, comprising steps of:

receiving a voice input from the caller, including a plurality of speech units, i.e. a first name and a last name (figure 4, steps 301 and 302, paragraph 0091);

identifying a caller by voice recognition with speaker dependent (previous identified caller) recognizer and speaker independent (generic) recognizer (Abstract); using a plurality of speech recognizers, i.e. a speaker dependent recognizer comprising a plurality of known caller voice patterns (acoustic models), and the speaker independent recognizer (also comprising a plurality of generic voice patterns) for

identifying a caller's name, wherein the speaker independent recognizer comprise a plurality of speech units, i.e. a first name and a last name of each caller inputted by a user (figure 4; steps 305-309; paragraphs 0056, 0089, 0093 and 0094);

identifying the caller as an previous identified caller or a new caller based on the match (score) of the speaker dependent recognizer and the speaker independent recognizer (paragraph 0093 and 0094); and

if the caller is identified as a new caller, generating a new speech sample (new model) for a new caller (paragraph 0094).

Almeida teaches generating new caller (a first time caller who's name is on a user's list per paragraph 0089) speech models (caller name patterns) by a name-adaptive trainer. Almeida fails to teach that the new caller speech models are generated by modifying speaker independent models (first name and last name inputted by the user in paragraph 0089).

However, Newman discloses a speaker identification system and teaches that a speaker dependent model is produced by modifying a speaker independent model based on training data generated from speech of a known speaker (column 7, lines 40-43).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify the Almeida's reference with the teaching of Newman so that new caller name patterns (acoustic models) would have been generated by modifying speaker independent models that comprising same speech

units (a first name and a last name), because such a modification would have clarified how the new caller models of Almeida were generated by the name-adaptive trainer.

1.2 Regarding claim 2, it is obvious that if a caller is an identified caller, speaker dependent recognizer will produce a better match score than the speaker independent recognize, and Almeida teaches that if a caller is identified by a speaker independent recognizer, but not by the speaker dependent recognizers, which is also obvious that in this case the speaker independent recognizer has a better match score.

1.3 Regarding claim 3, as discussed in above, Almeida also teaches using HMM which segments a speech input into phonetic sequence (paragraph 0053).

1.4 Regarding claims 4 and 5, Almeida teaches updating identified caller speech models (figure 4, steps 306, 309; paragraph 0093).

1.5 Regarding claim 6, Almeida teaches collecting a voice sample (pattern or model) of a new caller (figure 4, steps 308 and 309; paragraph 0094).

1.6 Regarding claim 8, Almeida teaches that the caller is not being alerted while performing speech recognition (figure 4, steps 302-309).

Art Unit: 2614

1.7 Regarding claim 9, as discussed in above, Almeida also teaches using HMM which segments a speech input into phonetic sequence (paragraph 0053).

1.8 Regarding claims 14 and 26, Almeida discloses a system using the Hidden Markov Models (HMM) for speech recognition (paragraph 0053), comprising:

a incoming voice recorder for receiving a voice input from the caller, including a first name and a last name (figure 2, steps 301 and 302; paragraphs 0066, 0091);

memories 120 and 125 for storing speaker dependent (previous identified caller) speech patterns (acoustic models) and speaker independent speech patterns (genetic models), wherein speech patterns includes a first name and last name (figure 2; paragraphs 0075, 0082 and 0089);

parameters analyzers 118 and 123 for applying characteristics of the voice input to the speech patterns to produce a plurality of scores (figure 4; steps paragraphs 0091-0094, 0056);

name identifiers 122 and 127 for identifying the caller as an previous identified caller or a new caller based on the match (score) of the speaker dependent recognizer and the speaker independent recognizer (paragraph 0093 and 0094); and

if the caller is identified as a new caller, using a speech pattern generator generating new speech samples (new models) comprising a first name and a last name (same speech units for a new caller) (figure 4, step 309; paragraph 0094).

Almeida teaches generating new caller (a first time caller who's name is on a user's list per paragraph 0089) speech models (caller name patterns) by a name-

adaptive trainer. Almeida fails to teach that the new caller speech models are generated by modifying speaker independent models (first name and last name inputted by the user in paragraph 0089).

However, Newman discloses a speaker identification system and teaches that a speaker dependent model is produced by modifying a speaker independent model based on training data generated from speech of a known speaker (column 7, lines 40-43).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify the Almeida's reference with the teaching of Newman so that new caller name patterns (acoustic models) would have been generated by modifying speaker independent models that comprising same speech units (a first name and a last name), because such a modification would have clarified how the new caller models of Almeida were generated by the name-adaptive trainer.

1.9 Regarding claims 15 and 27, Almeida also teaches using HMM which segments a voice input into phonetic sequence for speech recognition (paragraph 0053).

1.10 Regarding claims 16, 17 and 28, Almeida teaches updating identified caller speech models (figure 4, steps 306, 309; paragraph 0093).

1.11 Regarding claims 18 and 29, as discussed above, Almeida teaches that if the caller is identified as a new caller, using a speech pattern generator to generate new speech samples (new models) for a new caller (figure 4, step 309; paragraph 0094).

1.12 Regarding claim 20, Almeida teaches that the caller is not being alerted while performing speech recognition (figure 4, steps 302-309).

1.13 Regarding claim 21, as discussed in above, Almeida also teaches using HMM which segments a speech input into phonetic sequence (paragraph 0053).

1.14 Regarding claim 35, Almeida discloses a system and method or identifying a caller. Almeida teaches:

receiving a voice input from the caller, including a plurality of speech units, i.e. a first name and a last name (figure 4, steps 301 and 302; paragraph 0091);

identifying a caller by voice recognition with speaker dependent (previous identified caller) recognizer and speaker independent (generic) recognizer (Abstract); using a plurality of speech recognizers, i.e. a speaker dependent recognizer comprising a plurality of known caller voice patterns (acoustic models), and the speaker independent recognizer (also comprising a plurality of generic voice patterns) for identifying a caller's first name and last name (figure 4; steps 305-309; paragraphs 0056, 0089, 0093 and 0094);

identifying the caller as an previous identified caller or a new caller based on the match (score) of the speaker dependent recognizer and the speaker independent recognizer (paragraph 0093 and 0094); and

if the caller is identified as a new caller, generating new speech samples (new models) for a new caller with same plurality of speech units (i.e. a first name and a last name) (paragraph 0094).

Almeida further teaches using the Hidden Markov Models (HMM) for speech recognition (paragraph 0053). The HMM inherently segments the voice input into a sequence of phonetic units for speech recognition (see US 5,825, 977 issued to Morin et al. column 3, lines 36-46, and also US 5,649,056 issued to Nitta, column 4, lines 24-29).

Almeida teaches generating new caller (a first time caller who's name is on a user's list per paragraph 0089) speech models (caller name patterns) by a name-adaptive trainer. Almeida fails to teach that the new caller speech models are generated by modifying speaker independent models (first name and last name inputted by the user in paragraph 0089).

However, Newman discloses a speaker identification system and teaches that a speaker dependent model is produced by modifying a speaker independent model based on training data generated from speech of a known speaker (column 7, lines 40-43).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify the Almeida's reference with the teaching

Art Unit: 2614

of Newman so that new caller name patterns (acoustic models) would have been generated by modifying speaker independent models that comprising same speech units (a first name and a last name), because such a modification would have clarified how the new caller models of Almeida were generated by the name-adaptive trainer.

1.15 Regarding claim 36, as discussed above, Almeida teaches that if the caller is identified as a new caller, generating new speech samples (new models) for a new caller (figure 4, step 309; paragraph 0094).

2. Claims 10, 11, 22, 23, 31, 32 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Almeida EP 0942575 in view of Newman et al. US 5,946,654 and further in view of Maes US 6,088,669.

2.1 Regarding claims 10, 22, 31 and 37, the modified Almeida reference teaches maintaining caller specific voice patterns (acoustic models) with speech units in sequence (first name, last name) in a memory 120, but fails to teach maintaining a caller specific language model for each of the previously identified callers.

However, Maes discloses a method for identifying a speaker, using speaker dependent and speaker independent models (column 5, line 61 to column 6, line 13). Maes further teaches using different models, such as HMM and special language

models specific to previous identified speakers for speech recognition (column 4, lines 42-49).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify the Almeida's reference with the teaching of Maes so that specific language models would have been maintained, because such a modification would have improved the accuracy of speech recognition as taught by Maes (see Maes, column 4, lines 49-52).

2.2 Regarding claims 11, 23 and 32, Almeida teaches identifying a caller as a new caller (who is a different caller from a previously identified caller) by speaker independent recognizer (paragraph 0094), and identifying the new caller by a speech unit sequence (first name, last name).

3. Claims 12, 24, 33 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Almeida EP 0942575 in view of Newman et al. US 5,946,654 and further in view of Beigi et al. US 6,684,186.

The modified Almeida reference teaches maintaining caller specific voice patterns (acoustic models) in a memory 120, but fails to teach merging voice patterns using a distance measurement.

However, Beigi discloses a speaker recognition system in that speech models with closest distance are merged (column 4, lines 1-12).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Almeida's reference with the teaching of Beigi so that speech patters with closest distance would have been merged, because such a modification would have saved memory space for not storing duplicated speech patterns.

Response to Arguments

4. Applicant's arguments with respect to claim*** have been considered but are moot in view of the new ground(s) of rejection.

Allowable Subject Matter

5. Claims 13, 25 and 34 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The modified Almeida teaches merging speech models, but fails to teach generating a user prompt identifying the merging speech models. Since Almeida teaches automatic speech recognition, there is no motivation to modify Almeida's reference into a manual operating system.

Conclusion

6. Any inquiry concerning this communication or earlier communication from the examiner should be directed to Simon Sing whose telephone number is 571-272-7545. The examiner can normally be reached on Monday - Friday from 8:30 AM to 5:30 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Fan Tsang, can be reached at 571-272-7547. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-2600.



S. Sing

10/13/2006



FAN TSANG
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600